MULTIPLE APPLICATIONS OF SEAMING SOLUTIONS FOR HEAT SHRUNK BANDS AND LABELS

RELATED APPLICATION DATA

The present application claims priority from U.S. provisional patent application Ser. No. 60/823,584, filed Aug. 25, 2006, which is incorporated herein by reference.

BACKGROUND

1. Technical Field

The present disclosure relates to the field of packaging consumer goods with plastic tamper evident and freezer capable bands and labels. In particular, a plastic film having adhesively bonded seaming solutions on its overlapping edges to create a plastic sleeve and method of manufacture is disclosed. In exemplary embodiments, the edges of the plastic films are connected utilizing multiple seams and a tear away graspable flap is formed by excess film extending beyond the seams.

2. General Background

Sleeves of plastic films are created by folding a single web of plastic film into a tube and forming a seam at the overlapping edges of the plastic film. These sleeves are utilized to manufacture heat sealable bands and labels for packaging of consumer goods. Tamper evident bands and other heat shrunk labels are utilized in several different applications. For example, the bands may be utilized for packaging food, pharmaceuticals, cosmetics or other products.

The art of adhesively seaming heat shrinkable films to make bands, sleeves or labels is fairly well developed. The seams must meet certain manufacturing requirements as well as specific requirements of particular foods and containers. The bands must be manufactured with speed and efficiency, but also have the required strength, appearance, and reliability.

Many times the bands are heat sealed to the container to indicate the container and its contents have not been tampered with to a consumer. Thus, it is important to maintain a strong band that only breaks when a consumer wants to access the contents of the container.

Conventionally, the bands, labels, sleeves and other applications created by the plastic films can be perforated to allow the consumer to more easily break the seal by pealing away a perforation strip to obtain what is in the container. In many instances, the perforation strip is formed at a location on the band other than the seamed area and the seamed area is meant to remain intact. The band is meant to be broken only at these perforations.

Often the perforation will fail before reaching the consumer. For example, the perforation may be too deep or the holes may be close together due to manufacturing issues. Thus, the band may break during the heat shrinking process or due to stresses experienced during the shipping and handling of the product. Additionally, many food products are frozen. In frozen food applications, the band will freeze and the perforation has a greater likelihood of failing due to thermal stresses or changes in brittleness as the temperature varies.

Additionally, the perforation may be too tight, making it difficult for a consumer to break the seal. Sometimes the producer will not even use perforation because perforations fail, making opening the container more difficult. Thus, the consumer must use some sort of tool to open the band. This is especially difficult for consumers who are weak, or have arthritis or other medical conditions.

SUMMARY

In an exemplary embodiment, a sleeve for use in packaging consumer goods comprising a plastic film having a first longitudinal edge and a second longitudinal edge. The plastic film is formed into a tube wherein the first longitudinal edge overlaps the second longitudinal edge defining a flap. A plurality of seaming beads are applied along the first longitudinal edge to seam the first longitudinal edge to the second longitudinal edge, the plurality of seaming beads including an inner seaming bead and an outer seaming bead to form a plurality of seams.

The overlapping edges of the plastic film form a flap, the flap being held closely to the container by the plurality of seams.

In another embodiment, the inner seaming bead comprises a stronger seaming solution to form an inner seam and the outer seaming bead comprises a weaker seaming solution to form an outer seam. In an exemplary embodiment, the outer seam may be easily broken by the consumer to provide access to the flap. The flap may then be pulled in the horizontal direction to remove the sleeve. As a result, there is a convenient flap, with no special perforation requirements, that provides an easily removable tamper-evident label or band.

This may also provide a benefit to the recycling of the different materials. The container and label may be of different materials that are best recycled separately. An easily removable band or label would provide for more efficient recycling.

In other embodiments, the sleeve further comprises a perforation strip having a plurality of perforation holes or series of dashes wherein the thickness of the film is reduced or interrupted to enable a user to break the sleeve and access contents of a container. In particular embodiments, the perforation strip is located on the second longitudinal edge and is protected by the flap when sealed. The flap lies over the perforated area, preventing failure due to stresses during manufacture or handling of the product.

In exemplary embodiments, the sleeve comprises heat shrinkable materials. The sleeve is used as a label for a container or as a tamper resistant security band.

In a further embodiment, a method of forming a multiple seam at overlapped first and second longitudinal edge portions of a plastic film is disclosed, the method comprising the steps of first providing a supporting base, a plurality of dispensing valves each with a dispensing tip spaced closely to the circumferential surface of the applicator roll, two nip rolls downstream of the applicator roll, and at least one web of plastic film. Then the film would be moved longitudinally over the supporting base and then between the rotating nip rolls. At this point, through the plurality of valves and tips, a plurality of continuous beads or spaced apart drops of an adhesive would be dispensed, and at least an inner seaming bead and an outer seaming bead are laid onto the first edge portion of the film while the film is supported by the supporting base.

In another embodiment, the method comprises overlapping the second edge portion onto the first edge portion, with the plurality of seaming beads of adhesive between the two overlapped edge portions. Then the overlapped edge portions are squeezed between the nip rolls, whereby the adhesives exude laterally outward from the channel and each bead is distrib-